AMENDMENTS TO THE CLAIMS

1.   (Original)   A method in a computing system for shipping a shipment, comprising:

    selecting a shipment for shipping, the selected shipment identifying a plurality of items to be included in the shipment;

    selecting a first item among the plurality of items;

    issuing a pick directive for the first item to a picker;

    receiving a pick confirmation identifying a first time at which the first item was picked;

    adding to the first time an expected travel time for the first item to obtain a sorter dwell start time;

    adding a target sorter dwell duration to the sorter dwell start time to obtain a sorter dwell end time;

    for each of the items of the plurality other than the first item:

        subtracting an expected travel time for the item from the sorter dwell start time to obtain a pick window start time for the item;

        subtracting the expected travel time for the item from the sorter dwell end time to obtain a pick window end time for the item; and

        issuing a pick directive for the item at a time to a picker between the item's pick window start time and pick window end time.

2.   (Original)   A method in a computing system for scheduling the picking of an item, comprising:

    determining that a first item specified for a distinguished shipment has been picked at a first time;

    adding to the first time an expected travel time for the first item to obtain a sorter dwell start time;

adding a target sorter dwell duration to the sorter dwell start time to obtain a sorter dwell end time;

subtracting an expected travel time for a second item specified for the distinguished shipment from the sorter dwell start time to obtain a pick window start time for the second item; and

subtracting the expected travel time for the second item from the sorter dwell end time to obtain a pick window end time for the second item.

3.   (Original)   The method of claim 2, further comprising issuing a pick instruction for the second item to cause the second item to be picked after the pick window start time for the second item, and before the pick window end time for the second item.

4.   (Original)   The method of claim 3 wherein issuing a pick instruction for the second item comprises transmitting to a picker a pick directive identifying the second item.

5.   (Original)   The method of claim 3, further comprising, after issuing the pick instruction for the second item, receiving a pick completion message for the second item.

6.   (Original)   The method of claim 3 wherein the distinguished shipment is among a plurality of shipments for which a first item has been picked and a second item has not been picked, each of the shipments of the plurality having a pick window end time for its second item,

the method further comprising selecting the distinguished shipment's second item for which to issue pick instruction before pick instructions for the second items of the other shipments of the plurality based on determining that the pick window end time for the distinguished shipment's second item is earlier than the pick window end time for the second item of each of the other shipments.

7.   (Original)   The method of claim 6 wherein the pick window end time for the distinguished shipment's second item is earlier than the time at which the selection is performed.

8.   (Original)   The method of claim 2 wherein the sorter dwell start time is obtained by adding a travel time variability allowance to the first time as well as the expected travel time for the first item.

9.   (Original)   The method of claim 2, further comprising receiving user input specifying the target sorter dwell duration.

10.   (Original)   The method of claim 2, further comprising:
after obtaining a sorter dwell start time and a sorter dwell end time, receiving an indication that the first item was observed at a specified point in its travel at a specified time;
using the specified point to determine a remaining travel time for the first item;
adding the determined remaining travel time to the specified time to obtain a revised sorter dwell start time;
adding the target sorter dwell duration to the revised sorter dwell start time to obtain a revised sorter dwell end time;
subtracting the expected travel time for the second item specified for the distinguished shipment from the revised sorter dwell start time to obtain a revised pick window start time for the second item; and
subtracting the expected travel time for the second item from the revised sorter dwell end time to obtain a revised pick window end time for the second item.

11.   (Original)   The method of claim 10 wherein the revised pick window start time is earlier than the pick window start time.

12.   (Original)   The method of claim 10 wherein the revised pick window start time is later than the pick window start time.

13.   (Original)   The method of claim 2, further comprising:

subtracting an expected travel time for a third item specified for the distinguished shipment from the sorter dwell start time to obtain a pick window start time for the third item; and

subtracting the expected travel time for the third item from the sorter dwell end time to obtain a pick window end time for the third item.

14.   (Original)   The method of claim 13, further comprising:

after the obtained sorter dwell start time, receiving an indication that the second item was observed at a specified point in its travel at a specified time;

using the specified point to determine a remaining travel time for the second item;

adding the determined remaining travel time to the specified time to obtain a revised sorter dwell end time; and

subtracting the expected travel time for the third item from the revised sorter dwell end time to obtain a revised pick window end time for the third item.

15.   (Original)   A computer-readable medium whose contents cause a computing system to schedule the picking of an item by:

determining that a first item specified for a distinguished shipment has been picked at a first time;

adding to the first time an expected conveyance time for the first item to obtain a sorter dwell start time;

adding a target sorter dwell duration to the sorter dwell start time to obtain a sorter dwell end time;

subtracting an expected conveyance time for a second item specified for the
distinguished shipment from the sorter dwell start time to obtain a pick
window start time for the second item; and

subtracting the expected conveyance time for the second item from the sorter dwell
end time to obtain a pick window end time for the second item.

16.   (Currently Amended)   A method in a computing system for scheduling
the picking of a plurality of items specified for an item shipment, comprising:

when a first-picked item of the plurality is picked, selecting a first period of time of a
target length during which the first-picked item is expected to arrive at a
sorting location; and

for each of the items of the plurality other than the first-picked item, designating a
picking period for the item other than the first-picked item that, when shifted
forward in time by an amount of time the item other than the first-picked item
will take to arrive at the sorting location once picked, falls completely within
the first period of time.

17.   (Original)   The method of claim 16 wherein the picking period designated
for a selected one of the items of the plurality other than the first-picked item, when shifted
forward in time by the amount of time the selected item will take to arrive at the sorting
location once picked, is the same as the first period of time.

18.   (Original)   The method of claim 16 wherein the picking period designated
for a selected one of the items of the plurality other than the first-picked item, when shifted
forward in time by the amount of time the selected item will take to arrive at the sorting
location once picked, begins later than does the first period of time.

19.   (Original)   The method of claim 16 wherein the picking period designated
for a selected one of the items of the plurality other than the first-picked item, when shifted

forward in time by the amount of time the item will take to arrive at the sorting location once picked, ends earlier than does the first period of time.

20.   (Withdrawn) A computing system for scheduling the picking of a plurality of items specified for an item shipment, comprising:

  a first period selection subsystem that, when a first-picked item of the plurality is picked, selects a first period of time of a target length during which the first-picked item is expected to arrive at an assembly point; and

  a second period selection subsystem that, for each of the items of the plurality other than the first-picked item, selects a picking period for the item that, when shifted forward in time by an amount of time the item will take to arrive at the assembly point once picked, falls completely within the first period of time.

21.   (Withdrawn) One or more computer memories collectively containing a pick window data structure, comprising:

  information identifying an item that is to be picked;

  information specifying a pick window start time for the identified item, after which the identified item is to be picked, the pick window start time being determined by subtracting from an item assembly point residency start time an amount of time that the identified item is expected to take to travel to an item assembly point; and

  information specifying a pick window end time for the identified item, before which the identified item is to be picked, the pick window end time being determined by subtracting from a item assembly point residency end time an amount of time that the identified item is expected to take to travel to the item assembly point,

  such that the contents of the data structure may be used to issue a timely picking instruction for the identified item.

22.   (Withdrawn) The computer memories of claim 21 wherein the item assembly point residency end time is determined by adding a desired residency duration to the item assembly point residency start time.

23.   (Withdrawn) The computer memories of claim 21 wherein the item assembly point residency start time is determined by adding to an actual picking time for a second item to be assembled with the identified item time an amount of time that the second item is expected to take to travel to the item assembly point.

24.   (Withdrawn) The computer memories of claim 21 wherein an amount of time that the identified item is expected to spend on a conveyor belt bound for the item assembly point is incorporated in the subtracted amount of time that the identified item is expected to take to travel to the item assembly point.

25.   (Withdrawn) The computer memories of claim 21 wherein the item assembly point has at least one item assembly unit, and wherein an amount of time that the identified item is expected to spend in the item assembly point before arriving at the item assembly point's item assembly unit is incorporated in the subtracted amount of time that the identified item is expected to take to travel to the item assembly point.

26.   (Withdrawn) The method of claim 21 wherein the item assembly point has a plurality of item assembly units, and wherein an amount of time that the identified item is expected to spend in the item assembly point before arriving at a particular item assembly unit among the item assembly point's plurality is incorporated in the subtracted amount of time that the identified item is expected to take to travel to the item assembly point.

27.   (Withdrawn) The method of claim 21 wherein the item assembly point has a plurality of item assembly units, and wherein an average amount of time that the identified item is expected to spend in the item assembly point before arriving at any of the item

assembly units among the item assembly point's plurality is incorporated in the subtracted amount of time that the identified item is expected to take to travel to the item assembly point.

28.   (Withdrawn) The computer memories of claim 21 wherein an amount of time that the identified item is expected to take to reach a conveyor belt bound for the item assembly point is incorporated in the subtracted amount of time that the identified item is expected to take to travel to the item assembly point.

29.   (Withdrawn) The computer memories of claim 21 wherein an amount of time that a picker is expected to take to reach the identified item is incorporated in the subtracted amount of time that the identified item is expected to take to travel to the item assembly point.

30.   (Withdrawn) An integrated display device, comprising:
a wireless receiver for receiving signals not conveyed by a conductor; and
a display displaying, in response to receiving a signal via the wireless receiver,
    information identifying an item to be picked for shipment, the identified item
    having been selected by comparing a time at which the signal was received
    to an interval of time specified as a pick window for the identified item.

31.   (Withdrawn) A method in a computing system for initiating the picking of a shipment, comprising:
    determining a set of items to be included in the shipment;
    comparing warehousing attributes of the items in the set;
    based upon the comparison, selecting one item from the set; and
    issuing a pick command for the selected item before issuing a pick command for
        any item of the set other than the selected item.

32.   (Withdrawn) The method of claim 31 wherein the pick command directs a picker to locate a unit of the selected item and initiate its conveyance to a shipment sorting point.

33.   (Withdrawn) The method of claim 32 wherein the compared warehousing attributes of the items in the set specify an anticipated amount of time to convey a located unit of the selected item to the shipment sorting point once its conveyance is initiated, and wherein the item of the set having the largest anticipated amount of time is selected.

34.   (Withdrawn) The method of claim 32, further comprising:

monitoring the extent of utilization of the sorting point; and

issuing the pick command only when the monitored extent of utilization of the sorting point indicates that the sorting point will be able to support the sorting of the shipment.

35.   (Withdrawn) One or more computer memories collectively containing a picking schedule data structure, comprising:

for each of two or more items specified for inclusion in the same shipment, information specifying a pick window start time, after which the item is to be picked, and a pick window end time, before which the item is to be picked,

such that each of the items, if picked within the pick window specified for it, will arrive at a common destination during a predetermined arrival window.

36.   (Withdrawn) One or more computer memories collectively containing an item picking prioritization data structure comprising a plurality of entries, each entry comprising:

information identifying an item belonging to a shipment of items; and

information identifying a time by which the identified item must be picked

in order for the shipment of items to occupy a shipment aggregation unit for no more than a target amount of time.

37.   (Withdrawn) The computer memories of claim 36 wherein each entry further comprises information identifying a time after which the identified item must be picked in order for the shipment of items to occupy a shipment aggregation unit for no more than a target amount of time.

38.   (Withdrawn) The computer memories of claim 36 wherein the item picking prioritization structure comprises a plurality of groups of entries, each group of entries corresponding to a different shipment of items.

39.   (Withdrawn) The computer memories of claim 38 wherein the time identification information in a first group of entries identifies times by which the identified items must be picked in order for the shipment of items to occupy a shipment aggregation unit in a first location for no more than the target amount of time, and wherein the time identification information in a second group of entries identifies times by which the identified item must be picked in order for the shipment of items to occupy a shipment aggregation unit in a second location for no more than the target amount of time, wherein the second location is distinct from the first location.

40.   (Withdrawn) One or more computer memories collectively containing an item picking prioritization data structure comprising a plurality of entries, each entry comprising:

information identifying an item, the identified item having a pick window start time and a pick window end time; and

information identifying a picking urgency level for the identified item, the identified picking urgency level being a first picking urgency level if the present time is later than the identified item's pick window end time, the identified picking urgency level being a second picking urgency level if the present time is later than the identified item's pick window start time and earlier than the identified item's pick window end time, and the identified picking urgency level being a

third picking urgency level if the present time is earlier than the identified item's pick window start time.